CLAIMS

1. An automotive lighting system comprising:

a semiconductor laser light source adapted to emit laser light of at least one wavelength;

an optical wave guide coupled to the semiconductor laser light source to guide and blend the laser light; and

a focusing assembly coupled to the optical wave guide to direct the laser light.

2. The automotive lighting system of claim 1 wherein the semiconductor laser light source is an epitaxial structure including two light-emitting layers, the two-light emitting layers emitting light of distinct frequencies.

3. The automotive lighting system of claim 2 wherein the two light-emitting layers are gain-guided waveguides.

4. The automotive lighting system of claim 2 wherein the two light-emitting layers are index-guided waveguides.

5. The automotive lighting system of claim 2 wherein a first of the two light-emitting layers emits light corresponding to a red wavelength, and further wherein a second of the two light-emitting layers emits light corresponding to a blue-green (Cyan) wavelength.

6. The automotive lighting system of claim 2 wherein a first of the two light-emitting layers emits light corresponding to a yellow wavelength, and further wherein a second of the two light-emitting layers emits light corresponding to a blue wavelength.

7. The automotive lighting system of claim 1 wherein the semiconductor laser light source is an epitaxial structure including three light-emitting layers, the three-light emitting layers emitting light of distinct frequencies.

8. The automotive lighting system of claim 7 wherein the three light-emitting layers are gain-guided waveguides.

9. The automotive lighting system of claim 7 wherein the three light-emitting layers are index-guided waveguides.

10. The automotive lighting system of claim 7 wherein a first of the three light-emitting layers emits light corresponding to a red wavelength, and further wherein a second of the three light-emitting layers emits light corresponding to a green wavelength, and further wherein a third of the three light-emitting layers emits light corresponding to a blue wavelength.

11. A light source for use in an automobile comprising:

a semiconductor laser defining an emitting surface and adapted to emit laser light of a predetermined wavelength;

a phosphor layer coupled to the emitting surface of the semiconductor laser such that laser light emitted from the semiconductor layer causes phosphorescence in the phosphor layer, and further such that light including a plurality of frequencies is emitted from the phosphor layer.

12. The light source of claim 11 wherein the semiconductor laser emits laser light corresponding to a blue wavelength.

13. The laser light source of claim 11 wherein the semiconductor laser emits laser light corresponding to an ultraviolet wavelength.

14. The laser light source of claim 11 wherein the phosphor layer is a tri-color phosphor.

15. The laser light source of claim 11 wherein the semiconductor laser emits laser light corresponding to an ultraviolet wavelength, and further wherein the phosphor layer is a tri-color phosphor such that in response to being irradiated by the semiconductor laser, the tri-color phosphor emits substantially white light.

16. A remote lighting system comprising:

a first semiconductor laser emitting laser light of at least one selected wavelength;

a first network of optical waveguides coupled to the semiconductor laser light source to guide and blend the laser light; and

a focusing assembly coupled to the optical wave guide to direct the laser light, the focusing assembly disposed remotely from the plurality of semiconductor laser light sources.

17. The remote lighting system of claim 16 further comprising a second semiconductor laser emitting laser light of a second selected wavelength.

18. The remote lighting system of claim 16 wherein the first network of optical waveguides is a bundle of fiber optic channels.

19. The remote lighting system of claim 16 further comprising a second semiconductor laser emitting laser light of a second selected wavelength wherein the second semiconductor laser is coupled to a second network of optical waveguides, and further wherein the first network of optical waveguides and the second network of optical waveguides are severally coupled to the focusing assembly such that laser light of distinct frequencies is blended in the focusing assembly.

20. The remote lighting system of claim 16 wherein the focusing assembly includes headlamps, taillights, turn signals, and interior lighting for an automotive vehicle.

21. The remote lighting system of claim 16 wherein the focusing assembly includes an optic, and further wherein the optic comprises an aspherical section.

22. The remote lighting system of claim 16 wherein the focusing assembly includes an optic, and further wherein the optic comprises a substantially smooth surface having alternating straight and annular portions.

23. The remote lighting system of claim 16 further comprising an array of semiconductor lasers coupled to at least the first network of optical waveguides, the array of semiconductor lasers including at least the first semiconductor laser.